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## PATENT ABSTRACTS OF JAPAN

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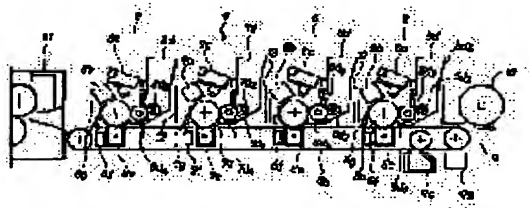
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(54) COLOR IMAGE FORMING DEVICE

## (57)Abstract:

PURPOSE: To present a color image forming device, which has high reliability about function thereof and which can always form image at high quality, and furthermore, which can be made compact.

CONSTITUTION: Multiple image forming units 5-8, which has a latent image holding body 5a, a static latent image forming means 5c for forming a static latent image on the surface of the latent image holding body 5a, a developing means 5d for making toner to be adhered to the surface of the static latent image to form a toner image, and a copying means 5e for copying the toner image to the copying material, are arranged continuously to form a color image forming device, in which the toner image formed per each image forming unit 5-8 is copied to the surface of the carried copying material in order by the copying means 5e-8e to form color image. In this color image forming device, at least one of the image forming units 5-8 is structured to a cleanerless image forming unit 5, in which the residual toner left on the surface of the latent image holding body 5a after copying is cleaned by the developing means 5c simultaneously with developing.



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**CLAIMS**

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[Claim(s)]

[Claim 1] A latent-image supporter, electrostatic latent-image means forming which forms an electrostatic latent image in said latent-image supporter surface, Image formation unit plurality which has a development means to make a toner adhere to said electrostatic latent-image side, and to form a toner image in it, and an imprint means to imprint said toner image to imprint material is arranged continuously. It is color picture formation equipment which carries out a sequential imprint and forms a color picture in an imprint material side which has a toner image formed for said every image formation unit conveyed with an imprint means. Color picture formation equipment characterized by being the cleaner loess image formation unit constituted so that the imprint remaining toner with which at least one of said image formation unit remains to a latent-image supporter side after an imprint might be cleaned with a development means.

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**DETAILED DESCRIPTION**

**[Detailed Description of the Invention]**

**[0001]**

**[Industrial Application]** This invention relates to the color picture formation equipment which was applied to color picture formation equipment, especially attained the miniaturization by the attachment of a cleaner loess image formation unit.

**[0002]**

**[Description of the Prior Art]** Two or more image formation units are arranged continuously, and the color picture formation equipment which carries out the sequential imprint of the toner image formed for every image formation unit with an imprint means in the imprint material side conveyed, and forms a color picture is known. Drawing 3 shows the configuration of the color-picture formation section in cross section among the scanner section for the manuscript read currently arranged in the important section of the configuration of this kind of color-picture formation equipment, i.e., the main part of color-picture formation equipment, the image-processing section which processes electrically the picture signal outputted as a digital signal from this scanner section, and the color-picture formation section which are based on the image information of each color by this image-processing section, and copy and reproduce a necessary image. And this color picture formation section consists of the image formation unit 1 for blacks, an image formation unit 2 for yellow, an image formation unit 3 for Magentas, and an image formation unit 4 for cyanogen.

**[0003]** Moreover, the configuration of each of these image formation units 1, 2, 3, and 4 All The latent-image supporters (for example, photo conductor drum) 1a, 2a, 3a, and 4a, Said latent-image supporters 1a, 2a, 3a, and 4a Electrification means (for example, corona-electrical-charging machine) 1b which electrifies a field uniformly, 2b, and 3b and 4b, Latent-image supporters 1a, 2a, 3a, and 4a charged based on the image information from said image-processing section The electrostatic latent-image means forming 1c, 2c, 3c, and 4c which forms a necessary electrostatic latent image in a field, Development means 1d, 2d, 3d, and 4d to supply a toner to said electrostatic latent-image side, and to form an electrostatic latent image into a toner image, They are the latent-image supporters 1a, 2a, 3a, and 4a about imprint means (electrification machine for an imprint) 1e, 2e, 3e, and 4e to make an imprint material side imprint said toner image, and the imprint remaining toner which remained by said imprint. The configuration of having provided cleaning means 1f, 2f, 3f, and 4f to remove from a field is accomplished. That is, although the coloring toner to be used is changed, the configuration which arranged continuously common image formation equipment with [ so-called ] a cleaning means (unit) is taken (publication number 1-112267 number official report etc.). According to this color picture formation equipment, first, in the image formation unit 1, the electrostatic latent image of a black component color is formed in latent-image supporter 1a, is developed by the toner image of black, and is imprinted by the imprint material side. Subsequently, in the image formation unit 2, the electrostatic latent image of a yellow component color is formed in latent-image supporter 1a, and the imprint material side developed and conveyed by the toner image of yellow imprints in laminating. It will pass through the same process one by one below, and a necessary color picture will be copied and recorded.

[0004]

[Problem(s) to be Solved by the Invention] However, in the case of the color picture formation equipment of the above-mentioned configuration, there are the practically following problems. That is, while it has the outstanding image formation function also in this kind of color picture formation equipment, miniaturization of color picture formation equipment including the image formation section is desired. However, in the case of the color picture formation equipment of the above-mentioned configuration, two or more image formation units 1, 2, 3, and 4 of each which constitute the image formation section which accomplishes an important section are all the cleaning means 1f, 2f, 3f, and 4f. With, since the occupancy capacity of each image formation units 1, 2, 3, and 4 is also comparatively large, it is the trouble of miniaturization. That is, since the big imprint remaining toner recovery depot of capacity is comparatively required inevitably in order to collect extensively the imprint remaining toners which remain after imprinting to fields, such as latent-image supporter (drum) 1a, and to achieve the function to clean, said cleaning means 1f, 2f, 3f, and 4f are the cleaning means 1f, 2f, 3f, and 4f. The miniaturization of the actual condition is unescapable. If it takes into consideration that the imprint of the imprint remaining toner to an imprint material side increases comparatively in response to effect with the humidity of the external world etc. when copying and forming many images continuously especially or, there will be a limit also in the miniaturization of the imprint remaining toner recovery depot, and it will become the neck of miniaturization of the image formation section.

[0005] This invention coped with the above-mentioned situation, was made, and aims functional at offer of the color picture formation equipment in which it is reliable and the image of high quality not only always being formed but miniaturization is possible.

[0006]

[Means for Solving the Problem] Electrostatic latent-image means forming by which color picture formation equipment concerning this invention forms an electrostatic latent image in a latent-image supporter and said latent-image supporter surface, Image formation unit plurality which has a development means to make a toner adhere to said electrostatic latent-image side, and to form a toner image in it, and an imprint means to imprint said toner image to imprint material is arranged continuously. It is color picture formation equipment which carries out a sequential imprint and forms a color picture in an imprint material side which has a toner image formed for said every image formation unit conveyed with an imprint means. It is characterized by being the cleaner loess image formation unit constituted so that the imprint remaining toner with which at least one of said image formation unit remains to a latent-image supporter side after an imprint might be cleaned with a development means.

[0007]

[Function] According to above-mentioned this invention, by having considered as the cleaner loess image formation unit constituted so that the imprint remaining toner which remains to the latent-image supporter side after an imprint in at least one of an image formation unit might be cleaned with a development means, the image formation section is miniaturized and the miniaturization of color picture formation equipment itself can be attained. That is, in order that at least one in an image formation unit may accomplish the configuration of development and coincidence cleaning and it may not install a cleaning means separately, it can omit the spatial capacity which the cleaning means occupies. And in said cleaner loess image formation unit, since the reuse also of the imprint remaining toner is collected and carried out to a toner tank, use of an efficient toner is achieved.

[0008]

[Example] With reference to drawing 1 and drawing 2, the example of this invention is explained below.

[0009] In cross section, drawing 2 expands one (cleaner loess image formation unit) of the image formation section, and shows the example of an important section configuration (image formation section) of the color picture formation equipment which drawing 1 requires for this invention in cross section again. This image formation section consists of the cleaner loess image formation unit 5 for yellow, a cleaner loess image formation unit 6 for Magentas, a cleaner loess image formation unit 7 for cyanogen, and a cleaner loess image formation unit 8 for blacks. Moreover,

the configuration of each of these cleaner loess image formation units 5, 6, 7, and 8 All The latent-image supporters (for example, photo conductor drum) 5a, 6a, 7a, and 8a, Said latent-image supporters 5a, 6a, 7a, and 8a Electrification means (for example, corona-electrical-charging machine) 5b, 6b, 7b, and 8b to electrify a field uniformly, Latent-image supporters 5a, 6a, 7a, and 8a charged based on the image information from the image-processing section (not shown) currently installed separately Electrostatic latent-image means forming 5c, 6c, 7c, and 8c which forms a necessary electrostatic latent image in a field (print head), To said electrostatic latent-image side, for example, development means 5d, 6d, 7d, and 8d to supply a 1 component nonmagnetic toner and to form an electrostatic latent image into a toner image, Imprint means (electrification machine for an imprint) 5e, 6e, 7e, and 8e to make an imprint material side imprint said toner image, Said imprint means 5e, 6e, 7e, and 8e Latent-image supporters 5a, 6a, 7a, and 8a after imprinting a toner image The electric discharge lamps 5f, 6f, 7f, and 8f from which the charge which remains to a field is removed (elimination), And they are the latent-image supporters 5a, 6a, 7a, and 8a about the imprint remaining toner which remained by said imprint. It decentralizes in a field and they are said electrification means 5b, 6b, 7b, and 8b. While contributing to the entropy of electrification to depend Development means 5d, 6d, 7d, and 8d The configuration of having provided the decentralization means 5g, 6g, 7g, and 8g of the imprint remaining toner which promotes a cleaning action is accomplished. That is, although the coloring toner to be used is changed, the configuration which arranged continuously the so-called cleaner loess image formation equipments (unit) 5, 6, 7, and 8 is taken.

[0010] In addition, it is an imprint material conveyance means to convey the imprint material to which 9 imprints a toner image in drawing 1. For example, the transfer paper supplied by said image formation being interlocked with from the feed roller 10 Rolling-mechanisms (roller etc.) 9b which carries out sequential conveyance and which runs endless transparent endless-like belt 9a and this belt 9a substantially, It consists of 9d of belt electrification machines which give electrification of business to belt-cleaner 9c and belt 9a it runs which cleans the belt 9a page it runs. Moreover, the fixing unit fixed to a transfer paper side in the toner image with which 11 was imprinted by said transfer paper, and 12 are each cleaner loess image formation units 5, 6, and 7 and a batch object between eight.

[0011] Development means 5d, 6d, 7d, and 8d in the cleaner loess image formation units 5, 6, 7, and 8 which accomplish the component of the color picture formation equipment concerning this invention If a configuration and a function are explained Latent-image supporters 5a, 6a, 7a, and 8a 5d of toner support of the roller mold which supports a toner layer to the peripheral surface which was confronted with the field and has been arranged 1, 6d 1, 7d1, 8d1, and 5d of this toner support 1 and 6d1, 7d1 and 8d1 5d of toner supply objects which supply a toner to a field 2 and 6d2, 7d 2, 8d2, and the 5d of the aforementioned toner support 1, 6d1, and 7d1, 8d1 Toner layer regulation blade 5d3 which regulate the thickness of the toner layer supported by the field, 6d3, 7d3, 8d3, and the above-mentioned latent-image supporters 5a, 6a, 7a, and 8a 5d of toner support after supplying a toner to an electrostatic latent-image side 1, 6d1, 7d1, and 8d1 Toner recovery blade 5d4 which collect the toners of a field, 6d4, 7d4, and 8d4 And toner tank 5d5 which store a toner while equipping with these, 6d5, 7d5, and 8d5 It provides.

[0012] Next, an outline is explained about the development and coincidence cleaning in these cleaner loess image formation units 5, 6, 7, and 8. Electrostatic latent-image means forming 5c, 6c, 7c, and 8c Latent-image supporters 5a, 6a, 7a, and 8a When an electrostatic latent image is formed in a field, The imprint remaining toner which exists in a part for a live part (namely, the unexposed section or the non-image section) Electrification means 5b, 6b, 7b, and 8b Since it is charged certainly, toner support 5d1, 6d1, 7d1, and 8d1 from — latent-image supporters 5a, 6a, 7a, and 8a the electric field which control that a toner 2 transfers to a field — Namely, the potential for a live part, toner support 5d1, 6d1, 7d1, and 8d1 It is 1, 6d1, 7d1, and 8d1 5d of toner support by the electric field by the potential difference with potential. It transfers to a side. the imprint remaining toner which exists in coincidence at a part for a non-live part, i.e., the exposure section, and the image section — toner support 5d1, 6d1, 7d1, and 8d1 from — latent-image supporters 5a, 6a, 7a, and 8a the force of going — winning popularity — latent-image supporters (photo conductor) 5a, 6a, 7a, and 8a It remains on a field. a part for this non-live part

— the toner support five a1, six a1, seven a1, and eight a1 from — a new toner transfers and development, simultaneously cleaning are performed.

[0013] According to the color picture formation equipment of the above-mentioned configuration, first, a necessary electrostatic latent-image pattern is formed in latent-image supporter (photo conductor) 5a page of the information corresponding to a yellow image, development and coincidence cleaning are performed by operation principle which was described above with 1d of development means of the next step, and the toner image corresponding to the aforementioned electrostatic latent-image pattern is formed in latent-image supporter 5a page. Thus, the formed toner image is imprinted by the imprint material side conveyed synchronous by imprint means 5e from latent-image supporter 5a page. After this imprint, after latent-image supporter 5a page is irradiated by electric discharge lamp 5f and electrification is removed, homogeneity distributes mostly by 5g of decentralization means of the imprint remaining toner, latent-image supporter 5a page entropy is attained, and formation of the electrostatic latent-image pattern corresponding to a yellow image, development, coincidence cleaning, etc. are repeated again.

[0014] On the other hand, the imprint material by which said yellow image was imprinted is conveyed to the cleaner loess image formation unit 6 side for the following Magentas, and imprints a necessary Magenta image in laminating on the imprint material side where the aforementioned yellow image was imprinted by the actuation thru/or actuation which applied correspondingly case [ in the cleaner loess image formation unit 5 for yellow ]. Below, one by one, after performing the formation of a toner image of the color image which corresponds in the cleaner loess image formation unit 7 for cyanogen, and the cleaner loess image formation unit 8 for blacks, and an imprint, it is established in the fixing unit 11 and a necessary color picture is obtained.

[0015] At the image formation production process in said each image formation units 5, 6, 7, and 8 Although the so-called cleaning means is not installed separately, they are said development means 5d, 6d, 7d, and 8d. By the development and coincidence cleaning to depend Latent-image supporters 5a, 6a, 7a, and 8a Since the imprint remaining toner of a field is eliminated easily and certainly, color-mixture-izing, image gap, etc. of each color are canceled, it is clear (sharp) and a quality color picture is always formed. [ a toner image ]

[0016] In addition, what is necessary is just to let at least one piece be the cleaner loess image formation unit 5 by this invention in the color picture formation equipment of the above-mentioned configuration, although each image formation units of all were made into the cleaner loess image formation units 5, 6, 7, and 8. For example, the image formation unit most located in the upstream along the flow direction of imprint material is made into the cleaner loess image formation unit 5 for yellow, and others are good also as an image formation unit with the cleaning means of dedication, and can avoid the effect of color-mixture-izing more effectively in this case. Or the image formation unit most located in the downstream along the flow direction of imprint material is made into the cleaner loess image formation unit 8 for blacks. Others are good also as an image formation unit with the cleaning means of dedication (or an image formation unit and a cleaner loess image formation unit with the cleaning means of dedication). Toner tank 8d5 of the cleaner loess image formation unit 8 for blacks by this configuration It can be used for formation of a monochrome image by enlarging capacity comparatively. Moreover, the image formation unit most located in the downstream along the flow direction of imprint material is made into the image formation unit with a cleaning means for yellow, or the image formation unit with a cleaning means for cyanogen, it is good also as a cleaner loess image formation unit, and, as for others, also in this configuration, the effect of color-mixture-izing can be avoided more effectively.

[0017] Anyway, in the color picture formation equipment concerning this invention, although the property of the toner used properly or (monochrome, color, etc.) used etc. is taken into consideration and arrangement and the location of each image formation unit are chosen and set up suitably, it is necessary to arrange at least one cleaner loess image formation unit. That is, it is the functional side which forms a color picture, and the point of miniaturization, and is because the early purpose cannot be attained.



[0018] Moreover, with the color picture formation equipment of the above-mentioned configuration, they are the electric discharge lamps 5f, 6f, 7f, and 8f to the inside of belt 9a of the shape of endless [ transparent ] substantially. Although it arranges, in this invention, it is not limited to this configuration, and they are the electric discharge lamps 5f, 6f, 7f, and 8f. It arranges on the outside of endless-like belt 9a, and is good also as opaque in endless-like belt 9a. However, by taking a configuration which was described above, the efficient arrangement using the inside of endless-like belt 9a is attained, and much more miniaturization of color picture formation equipment can be realized.

[0019]

[Effect of the Invention] According to the color picture formation equipment applied to this invention as explained above, high degree of accuracy thru/or since electrostatic latent-image formation, coincidence development, and toner recovery and cleaning of the non-image section can be made proper, it is sharp thru/or clear and simplification of the cleaning means of the imprint remaining toner, and the simplification and the miniaturization of a configuration by this are not only attained effectively, but can form the color picture of high quality.

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[Translation done.]

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]** The cross section showing the example of an important section configuration of the color picture formation equipment concerning this invention.

**[Drawing 2]** The cross section expanding and showing the cleaner loess image formation unit in the example of an important section configuration of the color picture formation equipment concerning this invention.

**[Drawing 3]** The cross section showing the important section configuration of conventional color picture formation equipment.

**[Description of Notations]**

1, 2, 3, 4 — Image formation unit 1a, 2a, 3a, 4a, 5a, 6a, 7a, and 8a — Latent-image supporter 1b, 2b, and 3b, 4b, 5b, 6b, 7b and 8b — electrification means 1c, 2c, 3c, 4c, 5c, 6c, 7c, and 8c — electrostatic latent-image means forming 1d, 2d, 3d, 4d, 5d, 6d, 7d, and 8d — development means 1e, 2e, 3e, 4e, 5e, 6e, 7e, and 8e — imprint means 1f, 2f, 3f, and 4f — cleaning means 5f and 6f, 7f, and 8f — electric discharge lamp 5g, 6g, 7g, and 8g — Decentralization means of the imprint remaining toner 5, 6, 7, 8 — Cleaner loess image formation unit 5d1, 6 d1, 7 d1, and eight d1 — 5d of toner support 2, 6 d2, and 7 d2, 8d2 — Toner supply object 5d 3 and 6d3, 7d3 and 8 d3 — toner layer regulation blade 5d 4, 6 d4, and 7 d4, 8d4 — Toner recovery blade 5d 5 and 6d5, 7d5 and 8 d5 — toner tank 9 — imprint material conveyance means 9a— belt 9b— rolling mechanism 9c— belt cleaner 9d— belt electrification machine 10 — feeding roller 11 — fixing unit 12 — Batch object between cleaner loess image formation units

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**[Translation done.]**

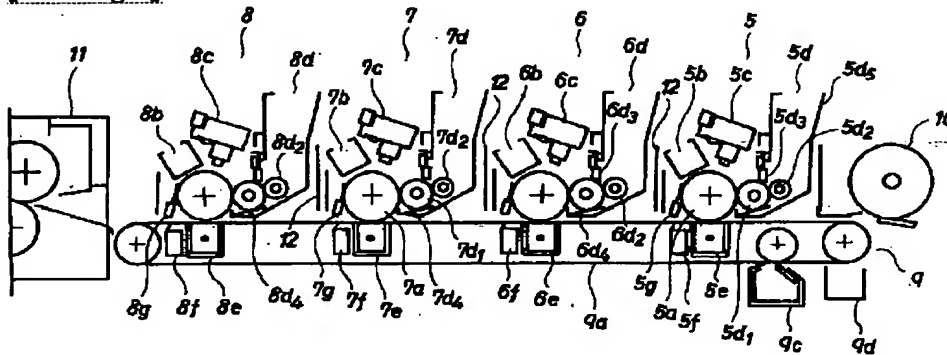
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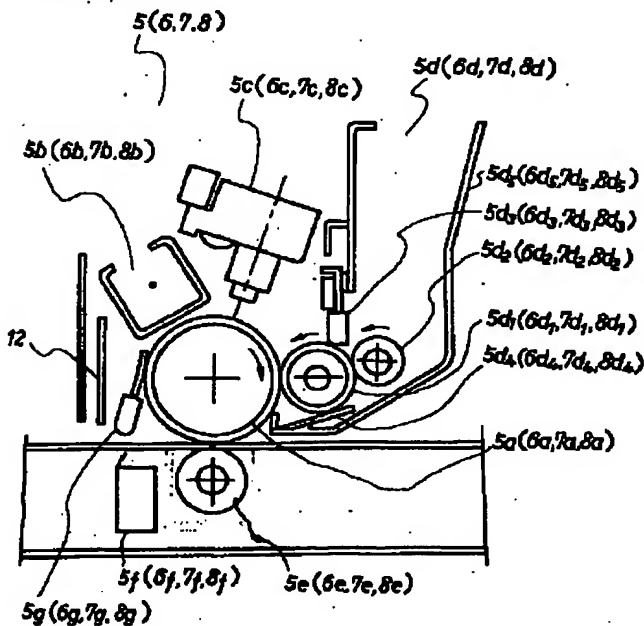
## DRAWINGS

[Drawing 1]

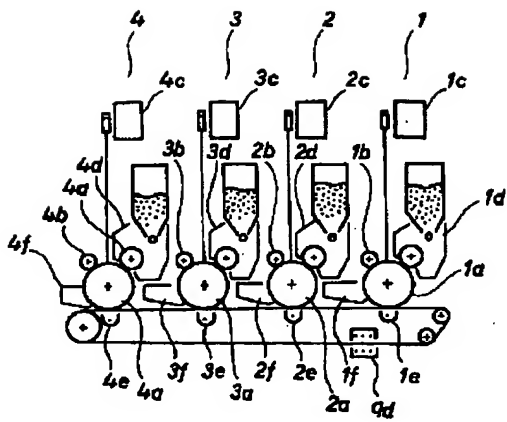


- |                         |                             |
|-------------------------|-----------------------------|
| 5, 6, 7, 8...面像形成ユニット   | 5g, 6g, 7g, 8g...残留トナ一分散化手段 |
| 5a, 6a, 7a, 8a...増幅保持体  | 5d, 6d, 7d, 8d...選像ローラ      |
| 5b, 6b, 7b, 8b...掃瞄手段   | 9...搬送手段                    |
| 5c, 6c, 7c, 8c...消像形成手段 | 9a...駆動ベルト                  |
| 5d, 6d, 7d, 8d...選像手段   | 9c...ベルトクリーナ                |
| 5e, 6e, 7e, 8e...駆動装置   | 8d...ベルト給電器                 |
| 5f, 6f, 7f, 8f...駆動ランプ  |                             |

[Drawing 2]



[Drawing 3]



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[Translation done.]

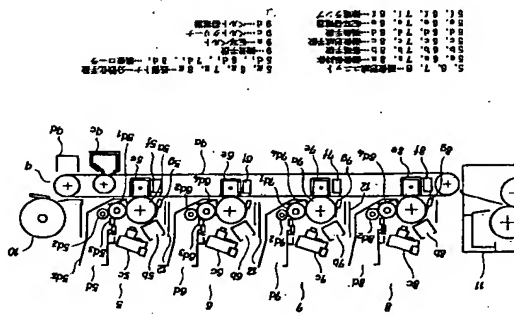
(51)Int.Cl. G 0 3 G	21/00 15/01	識別記号 1 1 1 L 7818-2H 1 1 3 A 7818-2H 1 0 1 7818-2H 7810-2H	斤内整理番号 6805-2H 7818-2H 7818-2H 7818-2H 7810-2H	F I	技術表示箇所
(21)出願番号 特願平3-215354	(71)出願人 000003078 株式会社東芝 神奈川県川崎市幸区堀川町72番地 000003582 東芝電気株式会社 東京都目黒区中目黒2丁目6番13号	(72)発明者 細丈 雅弘 神奈川県川崎市幸区小向東芝町1番地 株 式会社東芝総合研究所内 青森 三良 神奈川県川崎市幸区小向東芝町1番地 株 式会社東芝総合研究所内	請求項の数1(全5頁) 最終頁に続く	著者請求 未請求	密着請求 未請求
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(54)【発明の名称】 カラー画像形成装置

(57)【要約】

【目的】 機能的に信頼性も高くて常に高品質の画像を形成し得るばかりでなく、コンパクト化が可能なカラー画像形成装置の提供を目的とする。

【構成】 潜像保持手段5a、前記潜像保持手段5a表面に静電層を形成する静電層形成手段5b、前記静電層像面にトナーを付着させるトナー像を形成する現像手段5d、および前記トナー像をトナー像に転写する転写手段5eを有する画像形成ユニットは、数個を連続的に配置し、前記画像形成手段5cによって形成されたトナー像を搬送されてくる転写材表面に転写手段5eによって順次転写してカラー画像を形成するカラー画像形成装置であって、前記画像形成ユニットの少なくとも1個が転写手段5eによって現像と同時に転写手段5dによって現像手段5dにクリッピング動作を行うように構成されたトナー画像形成ユニット5であることと特徴とする。



(2)

【特許請求の範囲】

[illegible]

前記画像形成ユニットの少なくとも1個が転写後増像保持媒体面に残留する転写残リトナーを現像手段によってクリーニングするように構成されたクリーナー画像形成ユニットであることを特徴とするカラー画像形成装置。

【發明の詳細な説明】

1999

【産業上の利用分野】本発明はカラー画像形成装置に係り、特にクリーナーレス画像形成ユニットの付設によって小型化を図ったカラー画像形成装置に関する。

100021

【従来の技術】複数個の画像形成ユニットを連続的に配置し、画像形成ユニットごとに形成されたトナー像を、

と被写体とされてくる転写手段によって順次転写して形成されるカララ一面像形成装置の構成の要となる。図3はこのカララ一面像形成装置の構成の要部、つまりカララ一面像形成装置本体に内蔵されている高感度高解像度取りのためのキヤナ一部、このキヤナ部から出力される画像信号として出力される画像信号を電氣的に処理する画像処理部、この画像処理部による色々の画像情報に基づいて所望の画像を描写・再生するカララ一面像形成部のうち、カララ一面像形成部の構成を模式的に示したのである。そして、このカララ一面像形成部は、たとえば、図4に示すように、カラー一面像形成部は、たとえば、カラー一面像形成部2、マゼンタ用の画像形成部3およびシアン用の画像形成部4で構成される。

【0003】また、これらの各画像形成ユニット1、

[illegible]

寸きの一般的な画像形成装置（ユニット）を連続的に配  
設した構成を採っている（特開平 1-112267 号公報）

特開平5-53482

どい。このカラー画像形成装置によれば、まず画像形成ユニット1においてブラック成分色の静電潜像が潜像保持母材面1aに形成される。次いで、画像形成ユニット2においてイエロー成分色の静電潜像が潜像保持母材1aに形成され、イエローのトナー像に現像されて搬送されてくる転写母材面に潜移して転写される。以下順次同様に通電を繰り返して、カラー画像が描写・記録されることになる。

[0004]

【発明が解決しようとする課題】しかしながら、上記構成のカラー画像形成装置の場合は、実用上次のような問題がある。すなわち、この種のカラー画像形成装置の場合、も、すぐれた画像形成機能を有する一方、画像形成部を含め、カラー画像形成装置をコンパクト化が望まれていた。しかし、上記構成のカラー画像形成装置の場合、要部を成す画像形成部を構成する複数の各画像形成ユニット1、2、3、4は、いずれもクリーニング手段1、2、3、4、付付きで全面画像形成ユニット1、2、3、4の占有容積も比較的大きいため、コンパクト化の支障となつており、前記クリーニング手段1、2、3、4、

2

は、増設保持体（ドラム）はなどの面に転写後残留している転写残リトナーを全面的に回収し、クリーニンングする機能を実現するために、比較的大きな転写残リトナー回収回写留槽を必然的に要するので、クリーニング手段<sup>1)</sup>、段<sup>1)</sup> 2f, 3f, 4f の形成は不可避的なものである。特に連続的に多数の画像を複写・形成する場合、あるいは外界の湿度などにより転写材面への転写が影響を受けたりして、転写残リトナーが比較的多くなることを考慮すると、転写残リトナー回収回写留槽の小形化にも限界があつて、画像形成部のコンパクト化のネックとなる。

【0005】本発明は上記事情に対処してなされたもので、機能的に信頼性も高くても常に高品質の画像を形成し得るばかりでなく、コンパクト化が可能なカラー画像形成装置の提供を目的とする。

[000]

【課題を解決するための手段】本発明に係るカラー画像形成装置は、静電潜像保持媒体表面上に静電潜像を形成する静電潜像形成手段、前記静電潜像媒体上にトナー像を形成する静電潜像形成手段、前記静電潜像媒体上にトナー像を付着させトナー像を形成する現像手段、およびトナー像を転写材に転写する転写手段を有する画像形成ユニットと複数のユニットを並列的に配置し、前記画像形成ユニットによって形成されたトナー像を搬送されてくる転写材面に転写手段によって前記トナー像を転写してカラー画像を形成するカラー画像形成装置であって、前記画像形成ユニットの少なくとも1個が転写後静電潜像保持媒体面に残留する転写残トナーを現像手段によってクリーニングするように構成されたクリーニングユニットを画像形成ユニットを有する。

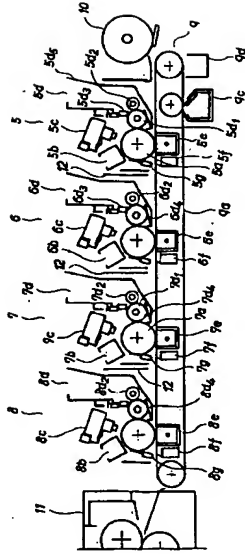
[0007]

【作用】上記本発明によれば、画像形成ユニットの少ない

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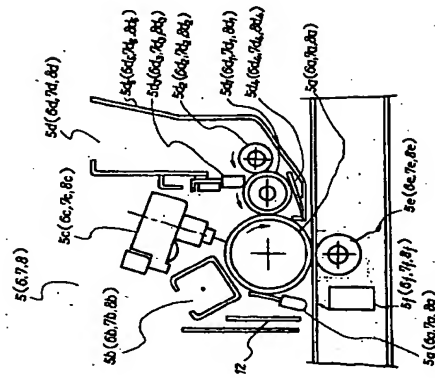


【図1】

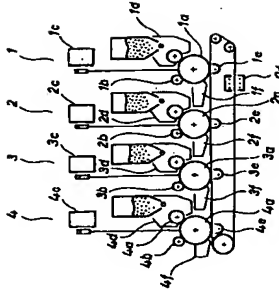


5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h, 5i, 5j, 5k, 5l, 5m, 5n, 5o, 5p, 5q, 5r, 5s, 5t, 5u, 5v, 5w, 5x, 5y, 5z, 5aa, 5ab, 5ac, 5ad, 5ae, 5af, 5ag, 5ah, 5ai, 5aj, 5ak, 5al, 5am, 5an, 5ao, 5ap, 5aq, 5ar, 5as, 5at, 5au, 5av, 5aw, 5ax, 5ay, 5az, 5ba, 5bb, 5bc, 5bd, 5be, 5bf, 5bg, 5bh, 5bi, 5bj, 5bk, 5bl, 5bm, 5bn, 5bo, 5bp, 5bq, 5br, 5bs, 5bt, 5bu, 5bv, 5bw, 5bx, 5by, 5bz, 5ca, 5cb, 5cc, 5cd, 5ce, 5cf, 5cg, 5ch, 5ci, 5cj, 5ck, 5cl, 5cm, 5cn, 5co, 5cp, 5cq, 5cr, 5cs, 5ct, 5cu, 5cv, 5cw, 5cx, 5cy, 5cz, 5da, 5db, 5dc, 5dd, 5de, 5df, 5dg, 5dh, 5di, 5dj, 5dk, 5dl, 5dm, 5dn, 5do, 5dp, 5dq, 5dr, 5ds, 5dt, 5du, 5dv, 5dw, 5dx, 5dy, 5dz, 5ea, 5eb, 5ec, 5ed, 5ee, 5ef, 5eg, 5eh, 5ei, 5ej, 5ek, 5el, 5em, 5en, 5eo, 5ep, 5eq, 5er, 5es, 5et, 5eu, 5ev, 5ew, 5ex, 5ey, 5ez, 5fa, 5fb, 5fc, 5fd, 5fe, 5ff, 5fg, 5fh, 5fi, 5fj, 5fk, 5fl, 5fm, 5fn, 5fo, 5fp, 5fq, 5fr, 5fs, 5ft, 5fu, 5fv, 5fw, 5fx, 5fy, 5fz, 5ga, 5gb, 5gc, 5gd, 5ge, 5gf, 5gg, 5gh, 5gi, 5gj, 5gk, 5gl, 5gm, 5gn, 5go, 5gp, 5gq, 5gr, 5gs, 5gt, 5gu, 5gv, 5gw, 5gx, 5gy, 5gz, 5ha, 5hb, 5hc, 5hd, 5he, 5hf, 5hg, 5hh, 5hi, 5hj, 5hk, 5hl, 5hm, 5hn, 5ho, 5hp, 5hq, 5hr, 5hs, 5ht, 5hu, 5hv, 5hw, 5hx, 5hy, 5hz, 5ia, 5ib, 5ic, 5id, 5ie, 5if, 5ig, 5ih, 5ii, 5ij, 5ik, 5il, 5im, 5in, 5io, 5ip, 5iq, 5ir, 5is, 5it, 5iu, 5iv, 5iw, 5ix, 5iy, 5iz, 5ja, 5jb, 5jc, 5jd, 5je, 5jf, 5jg, 5jh, 5ji, 5jj, 5jk, 5jl, 5jm, 5jn, 5jo, 5jp, 5jq, 5jr, 5js, 5jt, 5ju, 5jv, 5jw, 5jx, 5jy, 5jz, 5ka, 5kb, 5kc, 5kd, 5ke, 5kf, 5kg, 5kh, 5ki, 5kj, 5kl, 5km, 5kn, 5ko, 5kp, 5kq, 5kr, 5ks, 5kt, 5ku, 5kv, 5kw, 5kx, 5ky, 5kz, 5la, 5lb, 5lc, 5ld, 5le, 5lf, 5lg, 5lh, 5li, 5lj, 5lk, 5ll, 5lm, 5ln, 5lo, 5lp, 5lq, 5lr, 5ls, 5lt, 5lu, 5lv, 5lw, 5lx, 5ly, 5lz, 5ma, 5mb, 5mc, 5md, 5me, 5mf, 5mg, 5mh, 5mi, 5mj, 5mk, 5ml, 5mm, 5mn, 5mo, 5mp, 5mq, 5mr, 5ms, 5mt, 5mu, 5mv, 5mw, 5mx, 5my, 5mz, 5na, 5nb, 5nc, 5nd, 5ne, 5nf, 5ng, 5nh, 5ni, 5nj, 5nk, 5nl, 5nm, 5nn, 5no, 5np, 5nq, 5nr, 5ns, 5nt, 5nu, 5nv, 5nw, 5nx, 5ny, 5nz, 5oa, 5ob, 5oc, 5od, 5oe, 5of, 5og, 5oh, 5oi, 5oj, 5ok, 5ol, 5om, 5on, 5oo, 5op, 5oq, 5or, 5os, 5ot, 5ou, 5ov, 5ow, 5ox, 5oy, 5oz, 5pa, 5pb, 5pc, 5pd, 5pe, 5pf, 5pg, 5ph, 5pi, 5pj, 5pk, 5pl, 5pm, 5pn, 5po, 5pp, 5pq, 5pr, 5ps, 5pt, 5pu, 5pv, 5pw, 5px, 5py, 5pz, 5qa, 5qb, 5qc, 5qd, 5qe, 5qf, 5qg, 5qh, 5qi, 5qj, 5qk, 5ql, 5qm, 5qn, 5qo, 5qp, 5qq, 5qr, 5qs, 5qt, 5qu, 5qv, 5qw, 5qx, 5qy, 5qz, 5ra, 5rb, 5rc, 5rd, 5re, 5rf, 5rg, 5rh, 5ri, 5rj, 5rk, 5rl, 5rm, 5rn, 5ro, 5rp, 5rq, 5rr, 5rs, 5rt, 5ru, 5rv, 5rw, 5rx, 5ry, 5rz, 5sa, 5sb, 5sc, 5sd, 5se, 5sf, 5sg, 5sh, 5si, 5sj, 5sk, 5sl, 5sm, 5sn, 5so, 5sp, 5sq, 5sr, 5ss, 5st, 5su, 5sv, 5sw, 5sx, 5sy, 5sz, 5ta, 5tb, 5tc, 5td, 5te, 5tf, 5tg, 5th, 5ti, 5tj, 5tk, 5tl, 5tm, 5tn, 5to, 5tp, 5tq, 5tr, 5ts, 5tt, 5tu, 5tv, 5tw, 5tx, 5ty, 5tz, 5ua, 5ub, 5uc, 5ud, 5ue, 5uf, 5ug, 5uh, 5ui, 5uj, 5uk, 5ul, 5um, 5un, 5uo, 5up, 5uq, 5ur, 5us, 5ut, 5uu, 5uv, 5uw, 5ux, 5uy, 5uz, 5va, 5vb, 5vc, 5vd, 5ve, 5vf, 5vg, 5vh, 5vi, 5vj, 5vk, 5vl, 5vm, 5vn, 5vo, 5vp, 5vq, 5vr, 5vs, 5vt, 5vu, 5vv, 5vw, 5vx, 5vy, 5vz, 5wa, 5wb, 5wc, 5wd, 5we, 5wf, 5wg, 5wh, 5wi, 5wj, 5wk, 5wl, 5wm, 5wn, 5wo, 5wp, 5wq, 5wr, 5ws, 5wt, 5wu, 5wv, 5ww, 5wx, 5wy, 5wz, 5xa, 5xb, 5xc, 5xd, 5xe, 5xf, 5xg, 5xh, 5xi, 5xj, 5xk, 5xl, 5xm, 5xn, 5xo, 5xp, 5xq, 5xr, 5xs, 5xt, 5xu, 5xv, 5xw, 5xx, 5xy, 5xz, 5ya, 5yb, 5yc, 5yd, 5ye, 5yf, 5yg, 5yh, 5yi, 5yj, 5yk, 5yl, 5ym, 5yn, 5yo, 5yp, 5yq, 5yr, 5ys, 5yt, 5yu, 5yv, 5yw, 5yx, 5yy, 5yz, 5za, 5zb, 5zc, 5zd, 5ze, 5zf, 5zg, 5zh, 5zi, 5zj, 5zk, 5zl, 5zm, 5zn, 5zo, 5zp, 5zq, 5zr, 5zs, 5zt, 5zu, 5zv, 5zw, 5zx, 5zy, 5zz.

【図2】



【図3】



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